

# VIRGINIA WILDLIFE

JUNE 1992 ONE DOLLAR





Wild turkey; photo by Lloyd B. Hill



*Did you ever want to know how hunting and fishing ever got this good in the state? Well, turn to page 9 for a look at the Virginia Department of Game and Inland Fisheries' Board of Directors. These nine men and women are responsible for making the hunting and fishing regulations in the state and keeping politics out of fish and wildlife management. They are the voices of wildlife in Virginia.*



*Ever wonder why you can take home a 12-inch bass from Chickhomo-ny Reservoir, but have to hold out for a 14-incher on Occoquan? Find out more about how fishing regulations are made on page 20; photo by Soc Clay.*

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**Cover:** White-tailed deer fawn; photo by Rob Simpson.

**Back Cover:** Celebrate Safe Boating Week, June 7-13; photo by Doug Stamm.

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*Dedicated to the Conservation of Virginia's Wildlife and Natural Resources*





# *Exotic Delights—* Pleasures or Plagues?

*The real truth about  
the effects of alien  
species may not be  
news you  
want to hear.*

**T**here are about a million domestic cats in Virginia. Our ancestors began bringing them over from Europe in about 1620, and introduced this new predator into an ecosystem that previously had seen only bobcats and mountain lions. They also introduced, albeit inadvertently, black rats and house mice.

The European colonists changed the landscape so much that native mountain lions and many bobcat populations could no longer survive. In fact, mountain lions have been functionally, if not literally, extinct in Virginia for a century or more. On the other hand, domestic cats have increased in numbers and assumed a role similar to that played by bobcats.





consumed prey to our yard. Being a curious biologist, I tallied the results of this behavioral trait. I found out later that Ruth Beck, an ornithologist at the College of William and Mary, maintained a similar tally based on her single Siamese cat. We compared our data and discovered that the impact on Virginia's native species was truly dramatic.

During the 11-month study (two of the longhairs were killed by cars after Thanksgiving, causing the study to be terminated at that time), the four urban cats killed 104 individuals of 21 native species. Of these, there were six species of birds, seven species of reptiles, and eight species of small mammals. In that same time period, the single rural cat killed 83 individuals of 27 native species. These included eight species of birds, two species of frogs, nine reptile species, and eight species of small mammals.

The urban cats were particularly fond of small mammals. Nearly half of the 75 mammals tallied were northern short-tailed shrews. Others were woodland voles, eastern chipmunks, gray squirrels, southern flying squirrels, and eastern moles. These cats also killed 12 songbirds, including northern cardinals, tufted

titmice, Carolina wrens, and wood thrushes. Ground skinks, abundant in the nearby woodlot, were easy prey, as were rough green snakes, worm snakes, and smooth earth snakes.

The rural cat preyed on songbirds and small mammals with nearly equal frequency. The 25 birds included American goldfinches, dark-eyed juncos, and white-throated sparrows, in addition to the same species killed by the urban cats. Of the 26 mammals killed, the majority were white-footed mice, but others included eastern cottontails and several shrews and voles. Lizards, like eastern fence lizards and five-lined skinks, were favorite prey. This feline predator wasn't successful in every case, but those that escaped did so without their tails. Several snakes were killed and partially consumed, including juvenile black rat snakes, black racers, and worm snakes. The catholic diet of this cat even included the rear legs of green frogs and Fowler's toads.

The cats in this story are properly called domestic, free-ranging cats because they have access to human-supplied food and still prey on wild animals. Feral cats, on the other hand, fend completely for them-

Now, both of these native and introduced felines prey on whatever wildlife they can catch. Unfortunately, much of what they kill are native species that for a variety of reasons are declining in numbers. Native predators preying on native prey species is natural, but alien predators preying on native species is not. The descendants of the domestic cats introduced by the colonists have played an important role in the decline of Virginia's native wildlife.

My family had four domestic longhair cats in 1990. They were very good at catching local rodents, songbirds, and small snakes and lizards. These cats, like most of their kind, often brought their intact or partially



*As beautiful and playful as they might be, our cats are ruthless predators of wild mammals, birds, reptiles and amphibians when left to their own devices.*

**Opposite page:** Photo by Lynda Richardson.

**Left:** Cat with Eastern garter snake; photo by David Liebman.



selves and do not have access to store-bought food. It is impossible to estimate how many feral cats roam the Virginia landscape, but we can obtain a rough handle on the number of domestic, free-ranging cats there are in the Commonwealth.

I first obtained the estimated ratio of the number of Virginians to the number of cats from a Humane Society study; 5.9 people to one cat. From the census bureau, I discovered there were 6,187,358 people in Virginia in 1990. Simple math yielded an esti-

mate of 1,048,704 domestic, free-ranging cats. It seems to be a reasonable estimate given that the number of cats nationwide is some 60 million.

If all of these cats prey on native species like the cats in our study, then the impact of this introduced predator on our native fauna is truly disheartening. Extrapolation to the number of native songbirds killed annually in Vir-

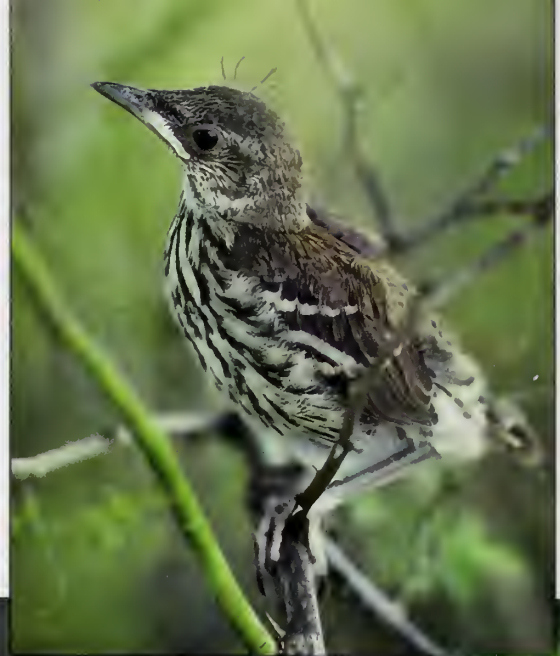


photo by Lloyd B. Hill

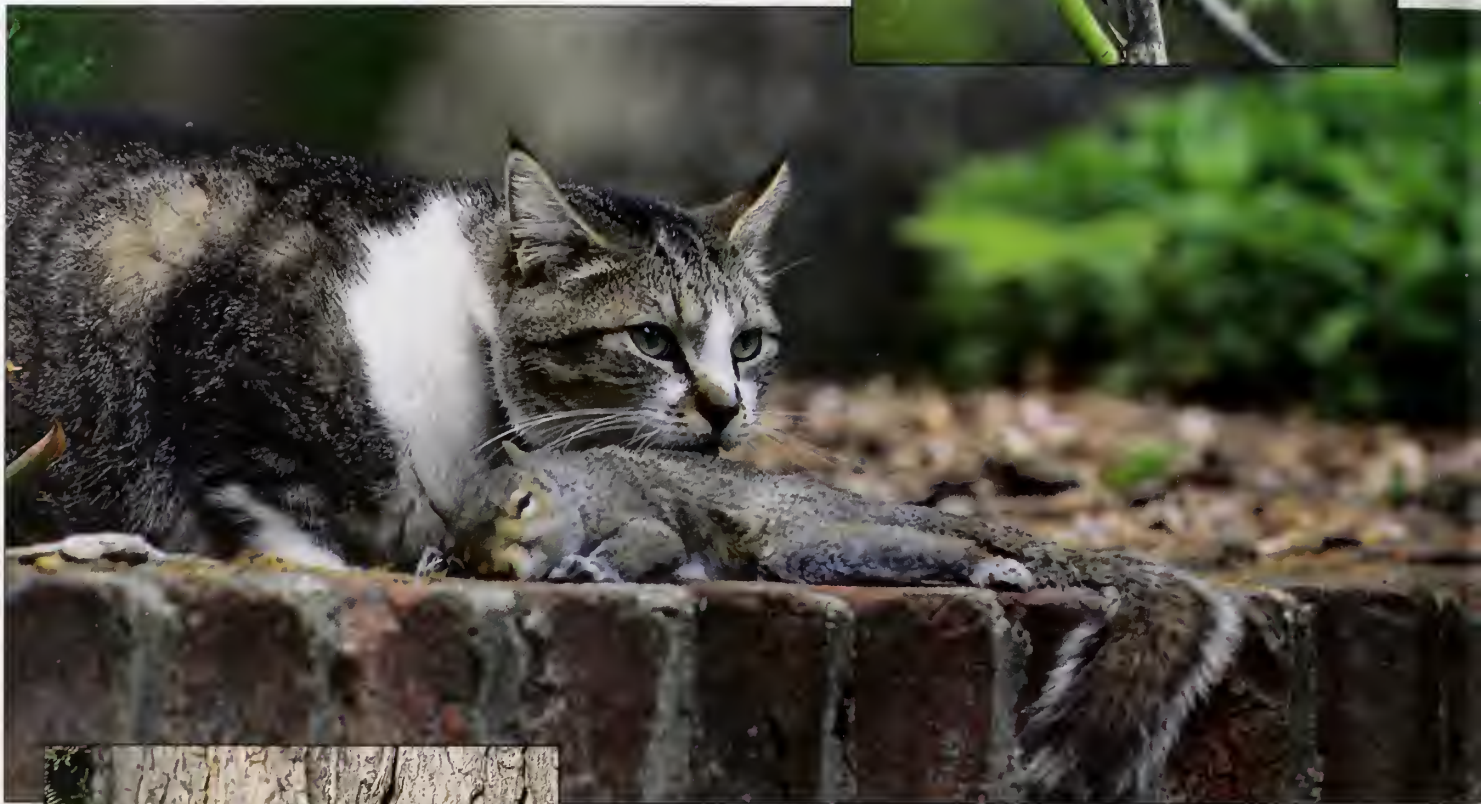


photo by Lynda Richardson



photo by Gregory K. Scott

ginia resulted in an estimate of 3-26 million. Estimated for small mammals was 27-78 million, and for reptiles it was 3-9 million. Pretty impressive. Even if these estimates are several times higher than reality, the impact is still dramatic, especially if one considers that this has been going on for decades. Cats may play a positive role in controlling some rodent populations,

but they certainly exert a negative effect on songbirds and reptiles, groups of native animals experiencing severe declines.

What to do? We first need a well-designed study to determine a better estimate of the impact that this alien predator has on Virginia's native wildlife. In the meantime, cat owners could help by keeping their pets indoors. Cats will kill prey whether they are hungry or not, so keeping them from contacting native prey species is the best solution. Bells

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around their necks, squirrel-proof bird feeders, and having them grow up with native species to accept them as "family" (as one recent country magazine article put it) are not effective. Long-term solutions involve educating people to the dual roles cats play in our society, loving pets and predators of wild animals, and then controlling the number of cats that encounter Virginia's native wildlife.

Many of our native species have experienced population declines, in some cases dramatically so, ever

since our ancestors cleared the land for agriculture and timber products. Although habitat loss is the primary cause of local population extinctions, it is not the only cause. Many of us are alarmed about these declines. Consequently, endangered species laws and other methods of control have been installed at both the federal and state level in order to combat these losses. Recognizing that our loving cats are part of the problem is a difficult pill to swallow for some, but cats do belong to a long list of

each geographic location has its own characteristic set of species. Elephants and giraffes occur in sub-Saharan Africa, for instance, and not in our backyards. When introduced into a different ecosystem, a new player brings in behaviors and tactics not seen before by the species in the receiving system. There are few ways, if any, for native species to combat the new kid on the block.

Two dramatic examples illustrate the point. In 1869, an entomologist imported gypsy moths from Europe to his lab in Massachusetts to cross-breed them with native silkworms. The silk industry was important in those days and he wanted to develop a better brand. Unfortunately, some escaped. This introduced insect became so abundant that by 1889 gypsy moth caterpillars stripped the hardwood trees bare in large tracts of New England forest each spring. Gypsy moths now range into Canada, the Midwest, and throughout much of Virginia. In this state alone, 594,000 acres of forest were defoliated by the larvae in 1990 and 616,200 acres in 1991. Defoliation weakens trees and makes them more susceptible to diseases and parasites, especially during droughts. Obviously the timber industry is affected, but what about wildlife, like squirrels and black bears, that depend on acorn mast crops for survival? The only native bird that regularly eats



photo by Michael P. Gadomski

Although cats are hard on native wildlife such as the thrush (*opposite page, top*), brown bats (*below right*), gray squirrels (*opposite page, middle*), and even southern flying squirrels (*opposite page, bottom*), other introduced species have taken their toll on our native species as well, such as the gypsy moth larva (*top*), the zebra mussel (*top right*), and Japanese beetles (*above right*).

species which have been introduced into North America by humans.

Introduced species often have deleterious effects on native species, examples of which abound in the popular and scientific literature. Predation, introduction of diseases or parasites, competition for food or nest sites, and hybridization are just a few of the negative impacts an introduced species may have. Why does this happen? Ecological relationships evolve in places over long periods of time. We all know that few species occur worldwide, and that



photo by Lee Walker

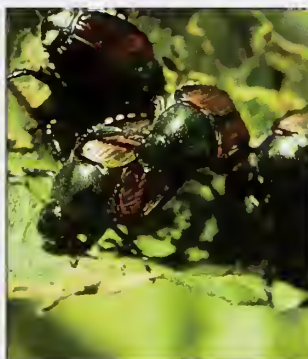


photo by David Liebman



photo by David Liebman



the voracious caterpillars is the cuckoo. And how many of those do you see every year? Controls provided by humans involve either other introduced species, like parasitic wasps, or pesticides.

The American chestnut was once a dominant tree in the mountainous areas of Eastern North America. It grew to heights of 100 feet and lived for over 600 years. Its fruits provided mountain people with food and an annual cash crop, its wood was used for fences and homes, and its bark contained tannin used for curing animal hides. It was an important source of food for wildlife. In 1904 a fungus was inadvertently introduced into New York City from Asia. The fingerlike hyphae essentially girdled mature trees, strangling them to death. The fungal spores spread so rapidly by adhering to birds and insects that, by the early 1930s, almost all of the chestnuts in North America had been killed. Native chestnuts had no way to combat this alien species. What was once the chestnut-oak-hickory forest became the oak-hickory forest in a matter of only three decades.

There are other examples, many of which you know. The English sparrow, starling, pigeon, Norway rat, house mouse, grass carp, brown trout, white fly, Mediterranean fruit fly, Japanese beetle, dandelion, tree of heaven, and Japanese honeysuckle are just a few. Indeed, of the 2,700 plants in Virginia, some 500 have been introduced from other parts of the world. About 40 percent of the fish fauna in the New River of southwestern Virginia is now comprised of species not native to that system. What effect do these alien species have on native species? Unfortunately, there are almost no answers because we have only recently begun to ask the question.

Recognition of the impact of alien species in natural ecosystems by the Department of Game and Inland Fisheries has made them aware of some potentially serious problems.



*The introduction of any non-native species into an area inevitably causes disruption of established ecosystems. The imported chestnut blight has destroyed our chestnut forests and is now affecting live oaks from Virginia to Florida (above). The common house cat (left), another introduced species, will kill native wildlife even if well-fed at home ; photos by David Liebman.*

For example, the African tilapia, prized as an aquaculture fish, is very tightly controlled because of its potential damage to native fishes if it escapes. Piranha from South America cannot be sold in Virginia because of their predatory behavior. No one can sell or possess tiger salamander larvae (often called waterdogs or mud-puppies) or adults in Virginia no matter what their original source. The potential introduction of diseases or deleterious genes into endangered native Virginia populations could cause it to become extinct in the state. The zebra mussel, a small bivalve recently introduced into the Great Lakes area, is causing many serious problems to native species and human industry. They become so numerous that they clog everything, including water intake screens of cities and towns and the shells of other

mussels. Biologists are very concerned that many native mussels, already endangered, will go extinct once this alien species arrives in southwestern Virginia. And what effect will it have on Chesapeake Bay oysters?

I think you get the picture. Alien species can harm our native wildlife. And being as we humans disrupted the natural order of things by bringing alien species into our state, we must be the ones to find the solutions. It's kind of like voting. One voice may not mean a great deal, but together we can have dramatic impacts. For starters, isn't it about time you controlled your cat to help Virginia's wildlife? □

*Joseph Mitchell teaches conservation biology at the University of Richmond and studies Virginia's native wildlife.*





photo by Wide World Photos, Inc.

# The Voices of Wildlife

*The voluntary, unpaid members of the Virginia Department of Game and Inland Fisheries' Board of Directors give a voice to the fish and wildlife of this state and the hunters and anglers who support them.*

by Bob Gooch



It was hot and humid in the capitol city. Heat waves danced above Richmond's Broad Street. Not exactly the kind of weather to think about waterfowl hunting—even to consider regulations. Maybe the air conditioning, operating at full blast in the meeting room, would provide a better atmosphere. Anticipating a capacity crowd, the Virginia Department of Game and Inland Fisheries had moved the public hearing from its cramped quarters to the more spacious hotel down the street.

The citizen board of the department traditionally meets in late August to set the waterfowl seasons that begin to open in October. Most years the department's hearing rooms can handle the crowd, but this time the staff would present a proposal to extend the experimental tundra swan season for another year. Strong opposition was expected. Letters of protest had been pouring into the governor's office as well as the offices of the department. Hunters would be there to defend their rights.

More than a swan season was at stake. Would the anti-hunters get a foothold here? This time they, somewhat surprisingly, had some support from the governor's office. Just how resolute would the board be in the face of such an assault on its professional staff? Would it hold its ground as it had done traditionally?

The one woman and nine men who comprised the Board of Directors listened with undivided attention as Bob Duncan, chief of the department's wildlife division, presented its biologically sound proposal. There was a harvestable surplus of the big birds in the state. Besides, they were creating problems for farmers and even threatening habitat for other waterfowl. While the board members were equally as attentive to

the opposition, the biological facts presented by Duncan and his staff far outweighed the emotional pleas of the opposition. The board stood firm in its support of the staff, even in the face of opposition from the governor's office. Virginia waterfowl

eries. A common interest bonds them, a concern for hunting and fishing and particularly the wildlife resources of the Old Dominion. Few, if any, have professional training in wildlife management. They are laymen, if you prefer.

The board members, one from each congressional district, are appointed by the governor for four-year terms, but serve at his pleasure.

That made their stand on the swan situation important. Would the governor react by removing them from their seats? It was a chance they were obviously willing to take. It illustrated rather graphically the role the board plays as a buffer between the political powers and the professional staff of the agency.

While a seat on the board may be a political plum, most who seek the office do so because of their interest in the work of the agency. "They are deeply interested in hunting and fishing and the proper management of the state's wildlife resources," said Jim Remington who served as executive director of the department in the late 1980s and early 1990s.

Loyalty to the ruling political party does not preclude an interest in the department or a willingness to work on behalf of its efforts. Expenses and limited compensation do not nearly justify the time donated by the board members. Their work is one of love.

The Virginia Department of Game and Inland Fisheries came into being in 1916, and at that time was set up under one commissioner who was also the chief of the Commission of Fisheries. In 1926, the General Assembly reorganized the agency, renaming it the Virginia Commission of Game and Inland Fisheries and creating its present system of a citizen board comprised of five members (increased to nine members in 1942) to supervise the operation of



hunters got another year of tundra swan hunting. The citizen board of the department in action, standing firm against political pressure on its professional staff, is a major reason for its existence.

The 10 members of the board come from all walks of life. Over the years there have been dentists, farmers, journalists, lawyers, physicians, a great variety of businessmen, and those who pursued other occupations. Collectively, they make up the Board of Directors of the Virginia Department of Game and Inland Fish-





**Title page:** The late Senator A. Willis Robertson, member and chairman of the Commission of Game and Inland Fisheries from 1926-1932, was the co-author of the most important piece of wildlife legislation ever passed in the country, the Pittman-Robertson Act of 1937. In this photo, Robertson (pictured center) is accompanied by Senator Alexander Wiley of Wisconsin (left) and Senator Chan Gurney of South Dakota (right) while celebrating the opening of National Wildlife Restoration Week over 25 years ago.

Over the years, sportsmen have benefitted from the devotion of the Department's citizen board to the fish and wildlife of Virginia. The board has supported the deer and turkey restoration programs in the state, and has often drummed up the support needed by Department to carry out its work.

**Opposite page:** photo by Dick Whittington.

**This page:** Wild turkeys fighting; photo by Lloyd B. Hill.

the agency. From the beginning, the agency was to be financed solely by funds derived through the sale of hunting and fishing licenses. Later there were funds raised at the federal level through the Pittman-Robertson and Dingell-Johnson Acts. Excise taxes on hunting equipment and fishing tackle levied under the provisions of these acts are distributed to the various states for fisheries and wildlife management programs. No general funds go into the agency's budget.

One of the major responsibilities of the citizen board then, and it still is today, was the selection of an execu-

tive head to manage the day-to-day affairs of the agency. In the early years this person carried the title of Chairman of the Commission. The first chairman was the late Senator A. Willis Robertson, later co-author of the Pittman-Robertson Act. When Robertson left the commission to enter the political world, Carl H. Nolting assumed the position. Neither of these gentlemen were professional wildlife managers.

During the World War II years the position of executive director was created to replace the full-time day-to-day duties of the chairman and the commissioners brought in T. E. Clarke as its first professional director. Tibbs, as he was fondly called, came from the George Washington National Forest in western Virginia where he had served as a wildlife biologist.

At about the same time a major change was made regarding the appointment of the citizen members of the commission—or the board as it is known today. Since 1926 the governor had made appointments to the commission without regard to geography. The result was the clustering of commissioners in certain parts of the state with little consideration

being given to where they lived. To correct this, the present system of appointing a member from each congressional district was established. The purpose, of course, was to spread the commissioners geographically.

Over the years the board has pretty much set its own agenda in carrying out its responsibilities, though tradition has established a familiar pattern. Conducting public hearings to permit the public to hear and respond to proposed regulations and seasons takes up much of the board's time. Many of these hearings are held in the department's hearing rooms in Richmond, but others are held at various points around the state to accommodate citizens who find it inconvenient to make the long trip to Richmond.

To a man, those who have served as executive director over the last half a century are highly supportive of the citizen board. The reason for creating the board back in the late 1920's was to have it serve as a buffer between the political structure and the professional staff of the agency. In other words, it was designed to keep politics out of the agency, and create an atmosphere where professional



wildlife managers could work unhampered.

"The buffer zone provided by the board works both ways," said Jim Remington. "The board is able to water down staff proposals that might create problems in the normal social structure of our lives."

Remington was the first executive director not to come from the professional fish and wildlife ranks. A successful business executive, he came aboard and took a hard look at the agency's financial structure. "It was almost broke," he said. He immediately went to work on increasing the license fees from which the agency derived the bulk of its income. This called for a bill in the General Assem-

cult period in the history of the agency. Phelps served as chief from early 1958 through most of 1978. Prior to that he had been chief of the wildlife division. I found him living in retirement near Greenville, North Carolina. He asked for time to think back over his career and I got back with him a day later.

He spoke fondly of many of the many commissioners he had worked with, particularly Thomas Herring of Dayton. "We called him Uncle Tom," he mused. "He was a fine Southern gentleman with a white goatee. If it hadn't been for him, our deer restoration program would have been in trouble."

Surprisingly, a lot of people were



Looking back to the old days conjures up memories of the Commission members who were influential in the years when the Department was bringing back deer and turkey to the state.

**Left:** counterclockwise from left: Commission members J.C. Aaron, Dr. E. C. Nettles, I.T. Walke, Jr., T. D. Watkins, a secretary of the Commission, Director Bercerley Straus, Jr., I.T. Quinn, Holman Willis, Jr., Thomas Herring, Dr. Warren B. Rains, J. Cargill Johnson; photo by L.G. Kesteloo.

**Top:** Chester Phelps, director of the Virginia Game Commission from 1958-1978, spoke fondly of the many commissioners he worked with, including Thomas Herring who was a driving force in deer restoration and T. D. Watkins of Midlothian who pushed for the acquisition of

land for wildlife management areas; photo by Dementi Studio.

bly, a bold move for a brand new executive director. The expected opposition to the increase quickly surfaced, and the bill was successful in no small part because the members of the citizen board worked one-on-one with their representatives in the General Assembly. The value of the board to a still-green executive director with a difficult problem proved immeasurable.

A visit with Chester Phelps who served two decades as executive director produced many instances of invaluable board help during a diffi-

cult period in the history of the agency. Phelps served as chief from early 1958 through most of 1978. Prior to that he had been chief of the wildlife division. I found him living in retirement near Greenville, North Carolina. He asked for time to think back over his career and I got back with him a day later.

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land for wildlife management areas; photo by Dementi Studio.

**Opposite page (top):** Since 1926, the citizen board of the Virginia Department of Game and Inland Fisheries has been putting "the sportsman's license money to work." The 1975 Game Commission pictured above (from left to right, standing): Frank Everest, Ralph Weaver, Eddie Edgar, Dr. James Knight, Jim Bowie, Jack Randolph. (Sitting from left to right): Dr. Allan Hoffman, Commission Secretary Norma Adams, Bill West, Director Chester Phelps, Dolph Hayes; photo by Francis N. Satterlee.

**Opposite page (right):** Jim McInteer followed Chester Phelps as executive director of the Department, and worked his way through many a controversial battle with the help of the citizen board; Staff photo.





"Uncle Tom Herring was also primarily responsible for our cooperative wildlife management program between the agency and the George Washington National Forest. It was the first such cooperative program in the nation."

Then there was T. D. Watkins of Midlothian who was very active in the acquisition of land for wildlife management areas. "I was chief of the wildlife division then," said Phelps, "and we worked often together. He was a hard worker for the agency. He was also active in getting the boat launching ramp program going. We had miles and miles of public streams and many acres of lakes, but our anglers and hunters couldn't get to them. That was a valuable program that T. D. was a

prime mover on. The Watkins landing on the James River was named for him."

Holman Willis of Roanoke was another member of the board whom Phelps spoke highly of. "He was a relative in some way of A. Willis Robertson," he said, "and very progressive."

"And don't forget E. Floyd Yates of Powhatan," added Phelps. "He worked diligently to get the spring turkey season. We had some strong opposition on that. A lot of incorrect information was being circulated, but Floyd stuck with us. Dr. Allan Hoffman of Danville gave us a lot of help with our trout program and was a leader in getting fee-fishing for trout going."

Jim McInteer, who served first as chief of the information and education division, and then six years as assistant director under Chester Phelps, was appointed executive director when Phelps retired in 1978. He now lives in retirement in Richmond and remains deeply interested in the department. The Holton Task Force and later the Hopkins Commission were a pair of moves that bugged the department during McInteer's tenure.

"The desire of both bodies was to have the executive director appointed by the governor," said McInteer. Had this move been successful, the position would have become a political appointment subject to change at

any moment and particularly upon the change in administrations. This was the very thing that the creation of a citizen board over half a century earlier had hoped to prevent. The move made McInteer's position extremely perilous.

Anglers and hunters and their organizations got into this one, and with the help of the citizen board as well as former members of that board, both moves were put to rest.

McInteer has reservations about the system of appointing a board member from each congressional district. "The purpose was on target," he said. "It does serve to spread the members geographically, but it creates some parochialism. New members come aboard feeling their primary responsibility is to their own districts whereas they are responsible for wildlife management programs all over the state. It might be a good idea to disregard the congressional districts in this case and have the governor take geography into consideration when he makes the appointments."

McInteer said there may have been a few aberrations over the years, but generally the board members had been dedicated to their tasks. He feels, however, the citizen board was weakened when the Secretary of the Department of Natural Resources, a member of the governor's cabinet, was given responsibility for the department. "In certain instances he can now bypass the board and go directly to the executive director. In some cases the executive director is also directly responsible to the governor or the General Assembly."

The late Dick Cross, except for some time out to serve as a fighter pilot during World War II, spent his entire career with the agency. Those who were fortunate enough to know Dick recognized his loyalty and respect for the citizen board. After many years as the chief of the wildlife division and then assistant executive director, he was moved up to the executive director spot and filled the years between McInteer and Remington. In his honor, the board renamed the Elm Hill Wildlife Management Area the Dick Cross



## Wildlife Management Area.

Jack Randolph was assistant executive director during Cross's entire reign and worked closely with him. Randolph, too, is now retired and following an outdoor writing career. He shares with us some of Cross's thoughts about the board. "Some come to the board with biases," he said, "but they mature quickly. Most, however, come with open minds." Randolph's own position is unique because he replaced E. Floyd Yates of Powhatan on the board and served one term as its chairman. Jim McInteer brought him to the professional staff as one of two assistant directors. Randolph has been able to observe the board from several perspectives.

Randolph was impressed with the work of Henry Thomas of Alexandria, Leon McFillen of Rosslyn, and Eli Jones of Tazewell. He echoed Chester Phelps' thoughts about Floyd Yates. "He was a good one."

E. Floyd Yates had celebrated his 89th birthday the day before I called him. "It also happened to be my 66th wedding anniversary," he chuckled. Yates served for 12 years in the General Assembly before becoming a commissioner with the Virginia Commission of Game and Inland Fisheries. "I served on all kinds of committees in Richmond," he noted, "but none of them gave me the satisfaction and pleasure I got from my time as a commissioner."

One of the General Assembly committees he served on had to do with fish and game bills. "I was successful in getting through the bill that increased the commissioners from five to one from every congressional district. The agency needed wider representation," he said.

He, however, echoed McInteer's feeling that the move to congressional districts created the impression that the board members represent that district. "That's wrong," he noted. "They don't have any district.



They're responsible for the entire state."

Yates also recalled the fight he had to get the spring gobbler season going. "Powhatan was the first county in the state to hold a season," he said. "But it was tough going."

Eddie Edgar of Norfolk had just spent 10 days in the hospital with a heart problem when I called, but he was eager to talk about his years as a commissioner. "I was the last one to serve 12 years, one year as chairman," he said. "I've never done anything more rewarding or that I enjoyed more. I think the board, as they call it today, is a wonderful thing for the anglers and hunters of the state. It represents them well."

Edgar was for many years an outdoor columnist for the *Norfolk Ledger-Star* and *Pilot Newspapers*. Between his column and his work with the then commission he gave a lot to the sportsmen of the state while at the same time serving full-time as an officer in a financial institution. He looks back with pride on the many accomplishments made during the two terms he served. Specifically, he mentioned the early duck season, the installation of boat launching ramps in the tidewater region, and the institution of the black-powder hunting season.

Dr. James Knight, a Warsaw dentist, served as a commissioner throughout most of the 1970's. "I recall very little political interference," he said. "Wildlife came first, and people second. I could detect no authoritarian attitude toward the staff. We

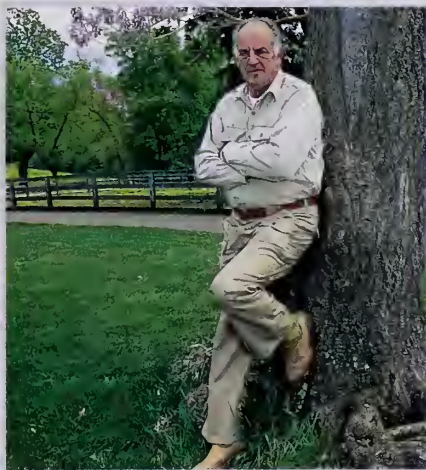


had a good executive director in Chester Phelps. We limited ourselves mostly to policy and left the day-to-day actions to him."

Knight feels the system provides an excellent way for the people, the anglers and hunters who support the agency financially, to have a voice in its decisions. That voice might be in

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Some of the Department's memorable commissioners/board members:

**Opposite page:** (Far left): Floyd Yates (left) joins Governor Thomas Stanley (center) and Education Division Chief J. J. Shomon (right) in looking over material on National Wildlife Week nearly 30 years ago; photo by L.G. Kesteloo.

(Top left): James Bowie; photo by Mel White.

(Center): Dr. Allan Hoffman.

(Bottom): Leon McFillen; photo by Roy Edwards.

**This page:** (Top left): Floyd Yates.

(Top right): Latane Trice.

(Above): Jack Randolph; photos by Dwight Dyke.

public hearings or in one-on-one visits with a member of the board. "We always tried to go along with the recommendations of the staff," he said. "About the only exceptions came when there was strong public opposition to some move. That was rare."

James Bowie, a Bristol attorney, served a decade as a commissioner. During his tenure, the length of a term was reduced from six to four years. He first served six years and then was reappointed for four. "I

have a million fond memories of those years," he said. "The subject matter, the wildlife resources of the state, was fascinating. I miss the association with the staff, fellow commissioners, and the chance to meet anglers and hunters throughout Virginia. Governor Godwin once told me a seat on the Game Commission was the most popular position he was called upon to fill. Everyone seems to want the job."

One accomplishment he remembers with pride is getting the either-sex fall turkey season established. "Charlie Perry and Kit Shaffer, both staff biologists, were helpful in convincing the other commissioners that it was a sound move."

Bowie recalls very few attempts at political interference. "Bear hunters at one time were going to their legislators and trying to get them to support ill-advised seasons, but we were able to convince them to leave the bear management to the staff biologists who knew what they were doing."

Ralph Weaver, a Waynesboro insurance man, was a very active commissioner. He met regularly with fishing and hunting groups all over the state, often traveling as far as Virginia Beach to do so. "I would talk about 10 minutes and then open it up to questions. That could go on for hours. I sometimes had to limit each person to one question. I got some good ideas from those talks," he said.

Weaver was once told he risked being relieved as a commissioner if he voted for opening a section of the

Mattaponi River to duck hunting on Wednesdays. Apparently, many of the governor's friends favored the closing. "I never understood that old regulation," he said. "The river was traditionally closed on Wednesdays to give the waterfowl some rest. If that was necessary, why were not all rivers closed on Wednesday?" He voted for the opening. "Regardless of the consequences," he said, "I felt I should do what I believed was right."

Weaver also joined Bowie in pushing for an either-sex fall turkey season. "I visited with a number of turkey hunters who pointed out that it was impossible to tell a young jake from a hen. That convinced me," he said.

Dr. Allan Hoffman, a Danville urologist and a native of New York, had just returned from a trout fishing trip in New Zealand when I talked to him. He feels the board members should play a leadership role in explaining wildlife management plans to the public. "Professional wildlife managers are highly vulnerable," he said. "Commissioners, as they were called when I served on the board, can also play watchdog roles in keeping an eye on political actions that threaten the department and its wildlife management programs. The board also provides a sense of trust that professional biologists can rely upon, whereas that might not be the case if they were subject to political control."

Dr. Hoffman takes particular pride in the various trout programs that were initiated during his tenure. He pointed to a stream survey which turned up some blue ribbon waters, the fee-fishing program, and the special fly-fishing only trophy trout streams with limited harvests.

Leon McFillen of Arlington is a current board member whose term expires in 1993, but who is eligible for reappointment. A realtor whose roots are in rural Clarke County, he is concerned that so many young people today do not have a rural background and the exposure to hunting, fishing, and the outdoors in general that he enjoyed. "Education should be one of our major concerns," he said.





*Forgotten by many today is the fact that deer restoration in the state was met by some resistance, especially among foxhunters who were worried about foxhounds developing a taste for a deer chase. With the help of Commission members like Tom Herring, however, the program got the support it needed to develop into the success story it is today; photo by Tim Black.*

McFillen also looks to the future. "The board should limit itself to policy, procedure and long-range planning," he said. "We need to anticipate needs and stay ahead of the curve. Funding, for example."

On the subject of regional versus state loyalties, McFillen says: "The board's constituency is statewide. As a member, I have to be as concerned about the freshwater mussels in southwest Virginia as I am about the deer in Fairfax County, and we have to work with other state agencies that are concerned with wildlife."

McFillen feels strongly that the day-to-day operations should be left to the staff. "They are well-trained professionals who have been there a long time and will be there long after my time expires. They are highly dedicated, and it doesn't matter whether they are in fisheries, game, education or any other division."

Latane Trice of Walkerton, an auctioneer and farmer, served a single term on the board in the late 1980's. Upon retirement he received a service award for his years on the board. "I feel a board member should possess business ability and a strong appreciation for the outdoors," he said. He also feels the board should have more authority in making major ap-

pointments within the department. "And I would like to see the game wardens spend more time working with young people in the area they serve. That would improve the agency's image," he added.

Trice was very concerned about a bill in the recent General Assembly that called for a study of the agency's management structure. "There's nothing wrong with the agency," he said. "The governor ought to appoint a committee to sit down with the board and executive director and let them tell the committee that."

All in all, these men show great pride in their past accomplishments as commissioners or members of the board, and also reveal a deep concern for the future. They are our watchdogs, alert for unfriendly moves on hunting, fishing and our wildlife resources. They are always ready to speak up, to come to the defense of fish and wildlife, hunters and anglers. These are common sentiments among those who have served on the board and the men they selected to carry out their responsibilities. □

*Bob Gooch is an outdoor newspaper columnist and author of several books on hunting and fishing. He lives in Troy, near Charlottesville.*



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# W GALLERY

Spencer Williams is not one to give up when things aren't going as planned. He tells a story about working on a skunk painting for three days and still not getting it right. He had an art show the next day, so he told his wife he'd be up all night, determined to fix whatever was wrong with that skunk. By the time morning rolled around, the skunk had turned into an elk.

"I just painted black over the skunk," laughed Spencer, "and made it into an elk."

Born in Georgia, schooled in Colorado, Spencer and his wife RhuNelle have been living in Virginia for six years now, and have shown that with tenacity, talent and business sense, it is possible for someone to make a living as an artist.

"I met Robert Flowers (featured as the *VW Gallery* artist in the December 1990 issue of *Virginia Wildlife*) three years ago," says Spencer, "and he was doing what I wanted to do, and I decided, by gosh, I want to be like him when I 'grow up!' " With inspiration from Flowers, Spencer left the "real world" of public relations behind three years ago and established Highlands Art Studio with his wife in their home in Volney in southwest Virginia. And, he's been making a living at selling his work ever since.

"I do lots of little studies of a subject first," he says, "to see if they'll sell and to help me nail down the right composition." The study of the black bear featured on pages 18-19, which is now a limited edition print entitled "The Cinnamon Tree," is an example of how Spencer Williams markets his work.

"Before I decide to make a lithograph, I go around to art shows and try to sell smaller studies of the work, to see how they'll sell. The little study of 'The Cinnamon Tree' sold the first day in the first place I hung it. On the other hand, I've got a little possum and they're slower to sell. I had a great time painting the possum, but he may not be the best seller."

Nevertheless, Spencer Williams doesn't believe he'll run out of ideas for awhile. "I have so many ideas floating

around in my head," he says, "my trouble is that there isn't enough time to do them all."

Spencer works strictly in acrylics. "I paint real transparent to start with and I build the painting, layer upon layer. Then, the last thing I'll do is go to the opaque to give it texture." Rarely, he'll end up with a painting that he doesn't like. However, when that happens, "I burn it." He chuckles. "I don't want to take the chance someone might see it."

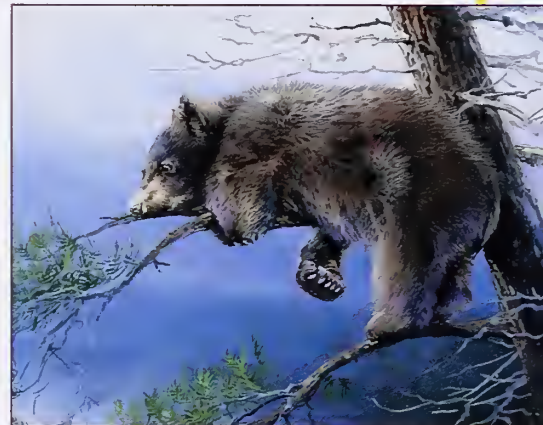
Although Spencer lives in the woods away from distractions of city living, the demands of country living still keep him running at a fast pace. "Try as I might," says Spencer, "I can't get away from this hectic schedule. I thought I'd have time off when I started working for myself, but I don't know what time off is."

"This week, I fenced the pasture off one day. I was digging a ditch the next day. I'll probably paint two or three days this week."

Once he starts painting, however, there doesn't seem to be much that can stop him. "My record is a little more than 40 hours straight," he says. "I find that I can't sleep, I can't eat, I can't get anything else done once I start painting. I'll probably be up tonight, too, because I have two paintings to finish to take to a show."

Still, though Spencer Williams may not suffer from a lack of ideas or procrastination, he does experience frustration every time he finishes a piece. "I want to be the best I can possibly be," he says softly in his Georgia drawl. "I always start out with a vision inside my head and when it comes out, it always falls short. I never perfect what I'm doing, so I keep trying all the time. I never resign myself, either, to being satisfied with the style I'm in now."

Regardless of his own aspirations, Spencer Williams is regarded as a talented wildlife artist of some note, having been featured in *Wildlife Art News* and with four limited edition prints to his name (with five more being scheduled for sale by the end of the summer by Willowbrook Press in North Carolina). Nevertheless, he doesn't take a bit of credit for any of it.



Spencer Williams (top) begins each work with a small study first. "The Cinnamon Tree" featured on the next two pages (photo by Dean Hawthorne) started out as the study above, then evolved into the finished work of which limited edition prints are now available.

"A lot of people will compliment me on my work, but I basically copy what God has already made," he says. "I want everyone to know that I give God the credit for anything I do."

In fact, under every signature on his paintings, Spencer pens in a reference to a verse from the Bible. Each one is different. For "The Cinnamon Tree," he used Psalm 18:33: "He maketh my feet like hinds' feet and setteth me upon my high places."

For more information about Spencer Williams' work, you can contact him mid-week at 703/579-4291 or at Highlands Art Studio, Rt. 2, Box 233B, Volney, VA 24379. □





*The Cinn*





mon Tree





# A Custom Fit

by Ron W. Kokel &  
John S. Stanovick

**W**hen you walk into your favorite clothing store to buy a new suit or dress, you don't just grab the first one you see on the rack, do you? Needless to say, the fit would probably leave a lot to be desired. Well, neither do Virginia's fishery managers when it comes to picking out just the right set of fishing regulations for a particular lake or stream.

If you're like me, I've always wondered why certain limits or legal sizes were put on my favorite lake or

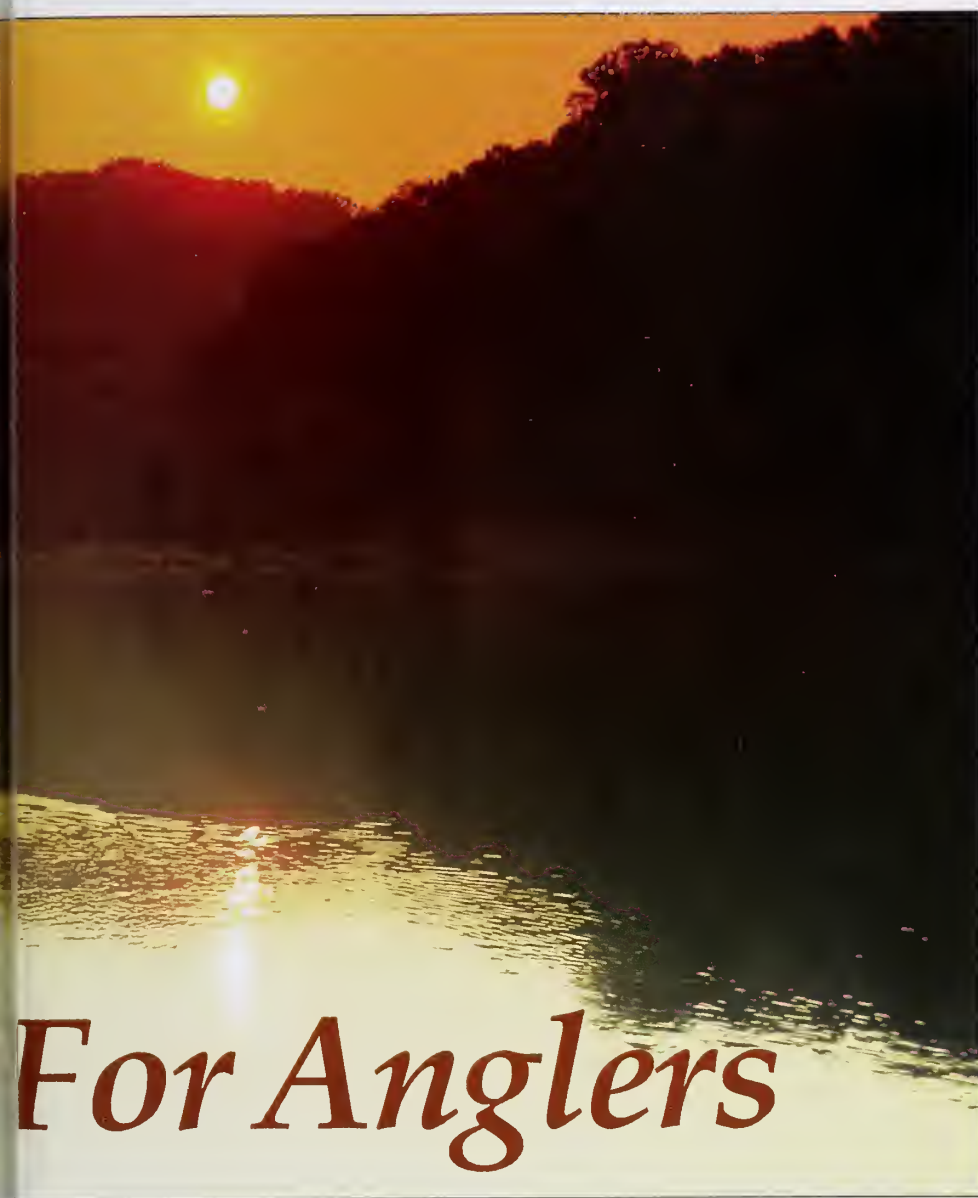
*Virginia's fish regulations aren't just pulled out of a hat. They're custom fitted for the streams and the anglers.*

how Virginia's Department of Game and Inland Fisheries comes up with the many different regulations used across the state. Surely, there must be millions of different regulation possi-

bilities. And like most other anglers, I simply chalk up these thoughts to the Great Unknown, trying not to think about them too much, especially when fishing. For Virginia's fishery managers, however, it's a very different story.

I've often overheard other anglers say, "There just are not any fish left in here. The fish are all too small. Those fisheries people need to stock more fish." And the one we all hear, "It's just not like it was when I was growing up. Why, you used to be able to..." I'm sure you can fill in the blank. What most anglers fail to realize is that with more and more anglers fishing in the Old Dominion, fish





# For Anglers

stocks, like the roads in northern Virginia, are facing more and more pressure. When real problems with fish populations result because of this, or when the public's goals and wishes for a fishery change, fishery managers may have to alter, or customize as I like to say, their management strategies.

One way managers can enhance fish populations is through fishing regulations. Basically, there are four types of fishing regulations commonly used by Virginia's fishery managers: *length limits*, *creel limits*, *season closures*, and *gear restrictions*. Most regulations you see out on your favorite lake or stream are simple

variations of these four types.

A *length limit* is most often used by the manager when trying to protect very large or very small fish, or fish of a certain age. Three types of length limit regulations are commonly used: *minimum length limits*, *slot length limits*, and *maximum length limits*.

Getting a little confusing? Well, let's take a closer look at each one. A *minimum length limit* means that fish shorter than a certain designated length must be released. A *slot length limit* means that fish within a certain designated length range, say between 12 and 15 inches, must be released. A *maximum length limit*

means that fish longer than a certain designated length must be released.

For example, let's say you're fishing for bass on the James River up above Richmond. Suddenly, you get a jolting strike and a tremendous fight ensues. The water boils. The fish jumps. It's give and take. Finally, after several uncertain moments, you boat the bass. Measuring the fish, you soon discover that it's a shade shy of 14 inches. A nice fish by anyone's standards. Since the James has a *slot length limit* of 11 inches to 14 inches on bass, you know that bass between 11 and 14 inches must be released back into the river. Thanking the fish for the battle, you quickly release it to fight again another day.

Now, let's suppose instead that the James had a *minimum length limit* of 13 inches for bass. Since the bass you caught was over 13 inches, and you know that a minimum length limit of 13 inches means that fish shorter than 13 inches must be released, had you opted to keep the bass, you could have.

Thus, it's now easy to follow that if we were to suppose instead that the James had a *maximum length limit* of 13 inches for bass (remember, a maximum length means that *fish longer than 13 inches* must be released), the fish would have had to be released since it was over 13 inches.

*Creel limits* (or simply the number of fish an angler can keep) are used by managers when trying to restrict the total amount of fish harvested or when trying to distribute the catch more evenly among anglers. I sometimes think that if it weren't for creel limits, I probably wouldn't catch anything, since some angler who really knew what he was doing out on the lake would have long before caught my meager share. However, when used with length limits, creel limits can help maintain healthy, balanced fish populations. Going back to our James River example, let's suppose that you already had three bass in the livewell when you caught that last bass. Knowing that the creel limit on the James is five bass, if the bass, been long enough (remember, it wasn't quite legal), you could have kept it had you wished.



*Gear restrictions* (or what type of equipment you may use to catch fish with) are sometimes used by fishery managers. Although they are most commonly used in commercial fisheries, such as setting net sizes or the number of lines a person can fish, recreational fishing gear restrictions can include such regulations as "fly fishing only" areas or the use of single hooks (more on them later).

Before regulations can be set or customized, however, several important pieces of knowledge about the fish population that we are going to fit must be determined. Managers, if at all possible, like to know things like fish density (the number of fish per acre), biomass (the total weight of all the fish), and growth rates (how quickly the fish are growing). This information helps them better understand the inner workings of the fish population.

Another important piece of information about the fish population needed by fishery managers to set effective regulations is *recruitment*. Recruitment, in simple terms, is when smaller fish finally grow to a large enough size to be considered part of the population. Much like when our children finally leave home and join the work force, when fish reach this size, the fish are said to be "recruited."

*Recruitment* can be affected by many factors. Predation (from birds, animals, or other fish), poor weather conditions (storms or cold-fronts at the wrong time of the year), poor water conditions (excessively muddy water or low water), pollution, and the lack of available habitat (such as aquatic weeds for young fish to hide in or spawning areas) can all have a direct effect on the number of fish recruited each year.

Now, let's take a look at two of the most sought after gamefish species in Virginia and how managers use these different types of regulations to help both the fish and the anglers that fish for them.

## Black Bass

From the Potomac River in northern Virginia to sprawling Buggs Island reservoir on the Virginia-North Carolina border, the black bass reigns

as the king of freshwater gamefish with Virginia's anglers. On any given weekend of the year, you can find tens of thousands of anglers plowing the water in search of the largemouth bass or its equally feisty cousin, the smallmouth bass. To illustrate, in a recently completed survey of the James River above Richmond, it was estimated that on one 39-mile stretch of the river, over 135,000 hours were spent by anglers fishing for bass. This calculates to almost 3,500 hours of angling effort per mile of river. To picture this, try to think of 435 anglers fishing only one mile of the river in this stretch for eight hours and then moving on to the next mile for eight hours, until 39 days later when they have fished the entire 39-mile stretch. With so many anglers and only so many fish, it's easy to visualize the effect they could have on the bass population.

Today, however, more Old Dominion anglers are practicing the art of catch-and-release fishing and the overharvest of bass populations is generally not a widespread problem. The primary concern of most fishery managers is maintaining the proper population balance (not too many small or large fish) so that bass growth rates will remain good. This situation is usually best maintained by using length limits.

If bass recruitment is low (in other words, for some reason few young bass are reaching adulthood, or catchable size), the bass population may need some form of protection. Predation by other fish, poor spawning habitat, or any variety of the previously mentioned recruitment factors could be affecting the bass population. (Biologists have found, however, that in most instances of low bass recruitment, food is not the problem.) If this is the case, a *minimum length limit* can be just the remedy needed.

A minimum length limit provides small bass protection until they can grow large enough to be recruited. Remember, a minimum length limit means that fish below a certain size must be released. This size can vary from 11 inches upwards to 16 inches, depending on the goals and desires of the fishery manager and the an-

glers. If anglers prefer to catch mainly larger bass, a *high minimum length limit* can be used (say 16 inches). If, on the other hand, anglers prefer to catch a lot of bass, a *low minimum length limit* can be used (say 12 inches).

On the other hand, if bass recruitment is high, a minimum length limit can do more harm than good to the fish population. With a lot of small bass all competing for a limited food supply, bass growth rates can decrease. In this case, a *slot length limit* can be used to allow the harvest of the abundant smaller bass. This allows the remaining small bass to grow more quickly into the protected slot range. Again, remember a slot length limit means that fish between certain sizes must be released. Upon growing into the protected slot range, the remaining bass enjoy the best of both worlds. Competition for food is less intense (because there are now fewer fish), causing growth rates to increase back to normal, and the bass are afforded protection from anglers.

The "food factor" as I like to call it, is often the key to understanding slot length limits and fish growth. Bass, like most other fish, can't simply take a bite out of something they wish to eat, like you or I. They must swallow their food whole. Thus, they must select food based on their own size and ability. It is not very efficient (from a fish's standpoint) for a 18-inch bass to survive by eating 1/2-inch bluegill. This is roughly analogous to you or me surviving by eating one pea at a time. On top of that, we would have to hunt, chase, and catch each pea! More energy is spent catching the food than we would get from eating it. Likewise, a 6-inch bass can't survive if 5-inch crawfish are the only food available. Try as they might, 6-inch bass simply are not capable of eating food that large. Again, I picture this problem by having to eat a whole watermelon in one bite. When a lot of small bass are competing for a limited food supply, growth is slowed because there is not enough food for each individual fish. However, by harvesting some of these smaller fish, some of the competition for food is removed, and the







remaining fish enjoy better food supplies and growth rates. For this reason, it is crucial that anglers harvest some fish below the slot length limit when such regulations are in effect.

## Trout

Unlike Virginia's self-sustaining bass populations which don't need to be stocked every year, many of Virginia's trout populations are located in streams that can't support them through the hot summer months. In the summer, some of the streams become either too warm or too low to support trout. Therefore, before regulations can be fitted, fishery managers must first decide what type of trout fishery will be put in the stream. This is done based on the stream type. Virginia fish managers have three types of trout stream fisheries: *put-and-take*, *put-grow-and-take*, and *native waters*. Regulations commonly used on these streams are *minimum size limits*, *creel limits*, *gear restrictions*, and *fishing closures*.

Streams that can only support trout in the early part of the fishing season when temperatures are colder and the waters are cooler are designated as *put-and-take* trout fisheries. Before trout season begins (usually the third Saturday in March), managers close these streams for three weeks to allow freshly stocked trout to get used to their new surroundings. Because these waters are not able to support trout later in the summer, *no special gear restrictions* and a *low minimum size limit* are usually imposed by managers in order to allow more efficient harvest of the stocked fish. A *creel limit* is also used so that more anglers have an opportunity to catch some of the stocked fish.

Streams that can support trout populations throughout the year, but for some reason have trout reproduction that is either very low or does not occur, are designated as *put-grow-and-take* fisheries. In this type of fishery, a *high minimum length limit* is

usually put in place by managers. This regulation allows trout to grow to larger, catchable sizes and also produces some trophy fish for lucky anglers. To help aid the survival of smaller stocked trout, managers may also use *gear restrictions*. Restrictions



Anglers may not realize that every regulation, be it creel limit or size restriction, is made to order to improve the fishing in a particular body of water; photo by G. J. Rohmann.

such as *fly-fishing only* and *single hook artificial lures only* allow individual fish to be caught and released several times before they grow to a size large enough that anglers may keep them. Flies and other single hook artificial lures have an advantage over bait and treble hooks because fewer fish die from wounds caused by hooking. By stressing the careful handling of trout to anglers and by reducing the chance that the trout will be killed due to being hooked, anglers have both the thrill of catching fish and the chance of catching a trophy.

The third type of designated stream, *native waters*, are usually high mountain freestone streams found in the National Parks and Forests of Virginia. Here, self-sustaining populations of brook trout are the primary

species managed. Brook trout, or "brookies" as anglers like to call them, are the only trout species native to Virginia. The beautiful natural color of the brook trout, the picturesque stream setting the brookie calls home, and the solitude of brook trout fishing stir the hearts of many of Virginia's anglers. However, because of small stream size and the extreme variability of water conditions that can occur, trout populations in most native waters are more susceptible to problems. To help protect these waters, managers usually use a *minimum size limit*. The minimum size limit allows adult brook trout a chance for reproduction before they are harvested by anglers. Additionally, because of the harsh natural conditions usually found on native waters, growth rates of the trout are quite low compared to other fish, causing managers to use restrictions similar to those placed on *put-grow-and-take* fisheries. To reduce hooking mortality, it is important that anglers carefully and immediately release all undersized fish. Brook trout are especially susceptible to angling. Like with *put-grow-and-take* fisheries, by practicing quick and careful releases, anglers can keep healthy populations of brook trout in Virginia's native streams.

Both bass and trout are important fish species to most Virginia anglers. By using the many different types of regulations available to them, Virginia's fishery managers are keeping our populations in healthy condition and providing the anglers of Virginia with many excellent opportunities to catch them.

So, the next time someone complains to you about the fishing regulations, say, "Hey, these regulations didn't just come off the rack, they're a custom fit!" □

Ron Kokel is a fish and wildlife biologist with the Federal Energy Regulatory Commission in Washington, D.C. John Stanovick is a fisheries biologist with the Missouri Department of Conservation.



# *We're fighting for their lives*

**M**any of Virginia's wildlife are in danger. Suffering from habitat loss and the dangers of pollution which threaten their survival, many species in the state are struggling to survive.

The Department of Game and Inland Fisheries is responsible for the protection and conservation of all wildlife in Virginia, but we receive no state tax dollars, and we need your help to do our job. Help us fund critical research and management programs for the state's nongame and endangered species by contributing to our Nongame Wildlife Fund, which is supported solely by voluntary contributions made through our state tax-checkoff program and direct giving.

Please use the gray card in back of this magazine to make a donation, or simply send your tax-deductible check (made payable to the Treasurer of Virginia), to: Virginia Nongame Wildlife Fund-VW, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104.



Screech owl: photo by Bill Lea

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**O**der the only comprehensive resource guide on Virginia's Endangered Species for \$32.95 (soft-cover) or \$59.95 (hardcover). This 675-page guide identifies and describes more than 250 rare and endangered plants and animals in Virginia. Produced by the Virginia Department of Game and Inland Fisheries and other state natural resource agencies, this book documents the latest scientific information on Virginia's endangered species, information which is available in no other publication. Send your

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*Cotton rat, photo by Rob Simpson*



# Virginia's Wildlife

## The Cotton Rat

by John Pagels

Our son John ran from our garden to tell neighbor Al Boswell. "There's a rotten cat in our garden! There's a rotten cat in our garden!" John, less than three years old at the time, hadn't seen it but knew I was excited about something that had darted under the bush beans. Of course, it was a cotton rat, not a rotten cat. But why get excited about a cotton rat? More about that later.

*Sigmodon hispidus*. The scientific name is quite descriptive. Like other rodents, the cotton rat has two constantly growing incisors in its upper and lower jaws that are separated from the cheek teeth by a large diastema, or space. What is special is that the enamel ridges on its cheek teeth are S-shaped, or sigmoid. Combine that with the suffix "don" or "dont" for tooth, and you have the generic name *Sigmodon*.

A closer look at the fur of a cotton rat reveals three kinds of hairs, underhairs and two kinds of guard hair. The underhair is fine and wavy. It entraps air and is important for its insulation qualities, much like down feathers are in birds. Of the two kinds of guard hairs, one is fine at its base, but past the outer length of the underhairs, it is expanded or thicker. Such a hair is called an awn, as in awning or protective covering over a window, and a single awn protects many of the finer underhairs. The second kind of guard hair is the spine, a kind of hair that is relatively thick and long throughout its length.

And it's these long, soft spines that give the cotton rat its spiny appearing pelage, and part of its common and specific name, *hispidus*, which in Latin means spiny or bristly. Too, the alternating light and dark bands on the guard hairs give cotton rats their grizzled appearance.

Why "cotton rat?" For several reasons, probably. Like other cotton rats, *S. hispidus* is basically a Southern species. Found in overgrown fields, especially in dense grasses and "weeds" (for example, honeysuckle thickets), it may spread into cultivated crops including cotton fields. A prey species, it is sometimes very abundant; actually it's one of the most common small mammals in the Southeastern United States. Active both night and day, we see them scampering across roads at night or in our cotton fields or gardens during the day. And, well, "cotton rat" sounds better than okra rat or tomato rat.

An adult cotton rat is smaller and has a much shorter and thinner tail than the introduced Norway rat. And it's much larger than a typical mouse. An old citation cotton rat (the males are slightly larger than the females) could weigh up to a half a pound, but most never live long enough to reach that size. Because they leave the nest when about three weeks old, it's not unusual to encounter them in the wild weighing as little as two ounces, and the more or less common five or six ounces. The broad range of sizes and night and day activity make the cotton rat an

ideal entree for a wealth of predators, among them bobcats and various species of hawks, owls, foxes, weasels and snakes.

Although primarily an herbivore, the cotton rat will occasionally feed on insects and is sometimes accused of taking a bird egg or two, including those of the bobwhite. But, did you hear about the guy that bush-hogged his fencerows and old fields so that the hawks wouldn't bother his quail and cottontail rabbits? Or cotton rats, maybe? What did he have left? Well . . . that's another story.

So, why should I get a kick out of the cotton rat in our garden? We mouse trappers now know that in Virginia the cotton rat ranges from near Virginia Beach northwestward to around Cumberland County and then southward to the Virginia border. It's even found way out in the Cumberland Gap area in extreme southwestern Virginia and it's showing up in other places. But when I moved to Virginia in 1969 it had been reported from only extreme south-central Virginia near North Carolina. When I put out my first bag of mousetraps near where I then lived in Chesterfield County, the first mammal I caught was a cotton rat. In the next couple of years I trapped quite a few dozen in trying to work out its Virginia distribution. The rotten cat, ah, cotton rat, was getting back at me. It deserved a good meal in our garden! □

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*John Pagels is a biologist at Virginia Commonwealth University who specializes in Virginia mammals.*



## Are You Virginia's Best?

In the April issue of *Virginia Wildlife*, we ran a story on Virginia's Best Anglers, with a Hall of Fame list for 1991. Unfortunately, it has come to our attention that some Master and Expert anglers were left off our list. If you qualified for Master or Expert rating during 1991 and weren't on our list, please let us know! Write or call Sonya Taylor, Fish Citations, VDGIF, 4010 W. Broad St., Richmond, VA 23230-1104, 804/367-1000.

## Youth Writing Contest

To encourage high school students (Grades 9-12) to sharpen their abilities to communicate the outdoor experience, annual awards of \$500, \$300, and \$200 are being offered by the Outdoor Writers Association of America (OWAA) for outstanding published articles. Winners and runners-up will receive handsome wall plaques. The sole criterion of the judges (within the guidelines) shall be excellent writing.

### Rules

1. The work must have been published in a newsletter, newspaper, magazine, etc. during 1992. The publication can be school, organizational or commercial.

2. The author must have been a high school (grades 9-12) (prep school) student at the time the article was published or accepted for publication.

3. The topic must be "outdoor" (hiking, camping, fishing, nature, hunting, canoeing, etc.). The approach can be any literary style including fiction and poetry.

4. Entrants must submit three tearsheets (or clear photocopies) of the entry. The tearsheet must contain the publication name and date.

5. Deadline for receiving entries is January 31, 1993. Send entry to OWAA Headquarters, 2017 Cato Ave., Suite 101, State College, PA 16801-2768.

6. OWAA will announce the winners at the OWAA conference in Portland, Oregon, June 6-10, 1993. The sponsor has the right to reprint the winning entries in its monthly publication. □



## New Report Highlights Fish and Wildlife Service Programs

The 1,000-pound sea turtle that attacked a boat full of biologists, the harmless-looking mussel that is menacing the Great Lakes, the museum that was running a scam for illegal animal trophies and the sneaky attempt to fool female sea lampreys into choosing sterilized mates are just a few of the items highlighted in "Fish and Wildlife '91," the annual report from the Interior Department's U.S. Fish and Wildlife Service.

The report covers the agency's major fish and wildlife conservation programs. Among other topics, the report offers information on new national wildlife refuges, fish restoration programs, and listing and recovery efforts for endangered species.

"We hope this report will be useful and interesting to people who want to know more about our country's conservation programs," said John Turner, Director of the Fish and Wildlife Service.

As the primary federal agency for fish and wildlife conservation, the Service has major responsibilities for migratory birds, nationally significant freshwater and anadromous fisheries, endangered species, and some marine mammals. The agency has some 700 field units and installations and oversees 91 million acres of national wildlife refuges.

Singe copies of the 80-page report are available free from the Publications Unit, U.S. Fish and Wildlife Service, Department of the Interior, 130 Arlington Square, 3301 North Fairfax Drive, Arlington, VA 22203 (703/358-1711). □

## Community Fishing Clinics Available

The Community Fishing Clinics Program is a new service being offered by the Virginia Department of Game and Inland Fisheries. The program is designed to assist organizations in sponsoring basic fresh and/or saltwater educational fishing clinics in their communities by providing a variety of services including educational materials, consultation, discount bait and equipment loans.

Educational clinics are a great way to introduce the sport of fishing as a healthy, constructive leisure activity to people of all ages and walks of life. An organizational kit is available to assist organizations in planning and enrolling a clinic in the Community



Fishing Clinics Program for \$5 from the Game Department.

For more information, or for a free brochure, contact Anne Skalski, Aquatic Education Coordinator, Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, Richmond, VA 23230-1004, or call 804/367-1000. □

## Letters

### A Teaching Tool for the Young

Your *Virginia Wildlife* magazines are my 3-1/2-year-old grandson's textbooks. He knows the name of every animal, fish, reptile etc. that you have pictured over the last two years. He also knows stories about each one, told by his father who is an enthusiastic sportsman and conservationist.

*Virginia Wildlife* magazine is a textbook for all of us. I especially like the features by Nancy Hugo. Keep up the simple, straightforward and teaching presentations.

Don Hower  
McDowell

## 1992 Fishing Guide Available

The 1992 Virginia Fishing Guide is hot off the press. This 28-page newspaper gives you this season's fishing outlook for every region of the state, including descriptions of the major public waters with directions on how to get there! It also includes a Trout Fishing Guide, complete with the trout stocking plan and a list of Virginia's native trout streams detailing angler accessibility, stream mileage and the USGS maps needed to get there. Additionally, the fishing guide includes a list of handicapped angler facilities across the state, license information, and information phone numbers.

All of this is packed into a newspaper, and best of all, it's free! Send you request for a copy to: Fishing Guide, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104 or call 804/367-1000. □



## Virginia Wildlife Posters

*Order yours today!*

Adorn your walls with the wildlife of Virginia by ordering your very own 19 1/2 X 27 1/2-inch full-color poster of a wood duck, barred owl or two white-tailed deer. Each poster sells for only \$8, so why not order one for yourself and one for a friend?

Supplies are limited, so specify which poster(s) you'd like us to send to you, make your check out to the Treasurer of Virginia (send \$8 for each poster ordered), and mail your order to:

Virginia Wildlife Poster Offer,  
VDGIF, 4010 W. Broad Street,  
Richmond, VA 23230-1104.

*Do it today!*



# Photo TipS

By Lynda Richardson

Leaning back in a fold-up beach chair, I yawned and stretched my legs. It was getting warm lounging in the early morning sun, so I reached for the cold glass of iced tea sitting on the ground beside me. Just 10 feet away, a red-bellied woodpecker munched on peanut butter. He was perched on the side of an old stump lapping up the high protein snack that I'd smeared there, his thread-like tongue darting in and out. He reminded me of my dogs when I gave them peanut butter to disguise nasty-tasting pills.

I leaned over to look through the viewfinder of my camera which sat on a tripod between my legs. Through the little rectangle I watched as the woodpecker continued to munch and occasionally look my way. When he posed just right, I fired a few frames. What could be easier than photographing birds a mere 10 feet away in your own backyard?

As I relaxed in the chair, I thought about how the woodpecker would react if he could actually see me. I seriously doubted the old boy would have allowed me and my gear within 50 feet of him. But in the safe realm of a photographic blind, the wildlife world remains happily unaware. If done properly, a mere canvas, wood or burlap covering can open up your opportunities to photograph wildlife.

Photographic blinds can be as different as the type of photographs you want to shoot. Your needs will dictate the kind of blind you choose. For example, if I want to photograph something from ground level to about three feet up, I will either use a large piece of material thrown over me and my equipment or I'll use an ECOTAT Shelter. The ECOTAT shel-

ter was originally created to serve as a multi-function poncho, hammock and tent for the military. Though I use it for all these purposes, the ECOTAT also makes a very comfortable photo blind. It sets up fairly quickly with aluminum shock cord poles, is waterproof and folds up into a nice,



*Inside the ECOTAT Shelter, one can shoot through the poncho hood or spread out and take a nap; photo by Tim Wright.*

small satchel. If you have two, and this is what I do, you can make a spacious two-person tent with enough room to sit on a low beach chair and shoot out of the top through the poncho hood. You can even stretch out for a nap.

Another one of my favorite blinds is the Leonard Rue Ultimate Blind. This blind is probably the quickest of all to set up, but it is large and can be difficult to store and transport. I use this blind when I have to work quickly. And though you can't nap in it comfortably, the Ultimate Blind does offer an advantage of having a wide selection of viewing ports and shooting positions. This blind is constructed of several pieces of heavy gauge wire which forms almost a crescent moon shape when closed or folded. The wire is covered with a waterproof material and when the blind is opened the entire contraption looks

like a camouflage igloo. You will have wire under your feet, so bring some indoor-outdoor carpet for flooring if you find this bothersome.

Another blind I use is the George Lepp Invisibind™. This blind rolls up into a nice compact package with a carrying case but it takes forever, comparatively speaking, to set up. It is made as a pre-constructed shell of heavy camo cloth in which you add the two provided shock cord poles which are fed through material along the main edges of the blind in dome tent fashion. These poles can then be plunged into the ground, if soft, or into PVC pipe which connects into a square base. The blind has many viewing ports and a great zipper system for choosing your shooting height, but it doesn't have much room for doing anything but sitting with minimal gear.

Nevertheless, you don't have to buy pre-made blinds to get the job done. I've known wildlife photographers to dig deep ground pits placing a light cover over the top and photographing animals at ground level. A raft, small boat or inner tube can be a floating blind. Even your car can provide a wonderful portable blind while traveling wildlife sanctuaries or national parks. I've built blinds in trees using an aluminum folding ladder with a plywood base on top surrounded by camo material tied to tree limbs and carefully draped around me. It all depends on what you want to photograph, what angle you want to shoot from and how much effort you want to put into it. As long as your subjects can't see your silhouette, detect motion or hear sound, you should be able to photograph nearly anything from a blind. All it takes is a bit of imagination to learn how to hide your hide.



By Spike Knuth

## Shorebird of the Uplands

The unusual mournful whistling call had stopped me dead in my tracks. It was like a long, drawn-out, melodic wolf whistle. At first I looked around, thinking someone was trying to be funny! All I saw was the fencerow and a lot of open farmland. I then realized the sound was coming from above me. I searched the sky until my eyes caught sight of a pair of slender birds, wings fluttering oddly, alternately coasting and flapping. It was they who were uttering the series of notes that rose in pitch as well as volume, then faded out.

It was the first time I had really noticed such a call, although I vaguely remember hearing it before but not paying any attention to it. Many times we hear things, but really don't take notice of them. The old Chinese proverb on eyes can be applied to ears as well. "Many ears hear, but few ears listen," a take-off on "Many eyes look, but few eyes see!"

I stood quietly watching the birds as they flew almost stiffly with wings fluttering in very shallow beats. They coasted down to a landing, each on a fence post, briefly holding their wings erect after lighting, an identifying characteristic of the upland sandpiper, or upland plover as it is usually called in the Midwest.

My first sighting took place in east central Wisconsin, in the farmlands along the east shore of Lake Winnebago. Upland sandpipers are still fairly common in the Midwest around the Great Lakes, the Mississippi Drainage through the Great Plains into the prairies of Canada, through the northern Rockies all the way to Alaska.

However, in Virginia the birds have become scarce. Writing in the book *Virginia's Endangered Species*, (coordinated by Karen Terwilliger and published by McDonald and Woodward, Blacksburg, Virginia),

John Bazuin, Jr. tells us that the state breeding population is down to 15 or 20 pairs with breeding birds being reported in a number of counties from Pulaski to Loudoun. Most migrational sightings are in those same areas, on the Eastern Shore, in tide-water and at a few inland airports.

While considered a shorebird through its family ties, the upland sandpiper is a bird of the flat open grasslands, pastures or other level or rolling cropland areas. Here, it's usually sighted perching on poles, fence posts, stumps or maybe a solitary rock in a field. Its normal habitat is reflected in its many other names, including upland plover, field plover, prairie plover, grass plover, pasture plover, hill bird, highland plover, land plover, uplander, prairie snipe, quailie or Bartramian sandpiper (its scientific name is *Bartramia longicauda*).

The upland sandpiper is about a foot in length, basically blackish-brown above, grayish or buffy-white below. It has a short, slender bill, a small head with a slender neck and a relatively long, dark tail. Its dark rump, large white-bordered, finely-barred, buff-colored tail, as well as its black and white underwing coverts, are good field marks to look for. Generally, its crown and primary wing feathers are darker than the rest of its plumage.

The upland sandpiper was always common in the prairie regions, but as forest lands were cleared for farming, their range expanded to the Northeastern United States. However, the market hunting era of the late-1800s took a heavy toll, and as human population and activity increased, its populations were rolled back, confining it to the rolling pasturelands, level croplands, high mountain valleys and grassy fields. Much of its Eastern habitat has been usurped by clean farming and subdivisions.

While it may be found in damp meadows or near water, it has no special need for it as other sandpipers do. It will sometimes be seen "hobnobbing" with killdeer, for example, because their habitat preferences overlap.

When nesting, the female will choose a spot near a clump of last season's grass or low-growing brush. She'll form a small hollow in the ground and line it with fine grasses and down. About four eggs are laid, varying in color from buffy, to pinkish to greenish-buff, marked with brown or lavender spots.

The hen and her nest blend in perfectly with the grassy surroundings and only when an intruder comes near to stepping on her will she reveal her location, especially when her "treasures" are close to hatching. The young grow fast after hatching and many are flying by mid-June. They are similar to the adults in appearance, but darker-backed, more buff-colored with only faint streaks on neck and breast.

Southward migration begins early, and by mid-August the upland sandpiper is on its way, with most of them gone from Virginia by early September. The upland sandpiper winters in South America, from southern Brazil to the pampas of central Argentina.

While the upland sandpiper is still common throughout most of its breeding range, it is rare in Virginia and is now considered endangered in the Old Dominion. While I have never heard or seen an upland sandpiper in Virginia, if I were to go looking for one, I'd look in the wide, mountain valleys and open pastureland and farmland of Bath, Augusta, Rockingham, Shenandoah, Page, Frederick, Clark, Warren, Fauquier and Loudoun Counties. Sky Meadows State Park might be a good place to start. □



# Recipes

By Joan Cone

## Walleye For Outstanding Eating

The walleye is found in rivers and reservoirs across Virginia. Whether you catch walleye by intention, or encounter a few by accident, you will find they make the nucleus of a wonderful meal.

### MENU

*Cream Of Cucumber Soup*  
*Broccoli 'n Fish Bake*  
*Leaf Lettuce With Mustard Dressing*  
*Deep-Dish Blueberry Pie*

#### Cream of Cucumber Soup

2 cups peeled and sliced cucumber  
 1/4 cup chopped celery  
 1 cup chicken broth  
 1 cup milk  
 3 tablespoons margarine or butter  
 2 tablespoons flour  
 1/4 teaspoon celery seed  
 1/4 teaspoon salt

Combine all ingredients in a processor and process until smooth. Chill soup 3 to 4 hours. Makes 4 servings.

#### Broccoli 'n Fish Bake

1 package (10 ounces) frozen broccoli spears  
 1 pound walleye fillets or similar fish  
 1 tablespoon lemon juice  
 Dill Sauce (recipe below)  
 1 cup biscuit baking mix  
 1/4 cup cold water  
 1 tablespoon butter or margarine, melted  
 1 tablespoon grated Parmesan cheese

Cook broccoli as directed on package; drain. Thaw fillets if frozen and pat dry. Arrange fillets lengthwise in ungreased rectangular baking dish, 12 x 7-1/2 x 2-inches. Sprinkle with lemon juice. Arrange broccoli spears

crosswise on fish. Prepare Dill Sauce (below) and pour over broccoli.

Mix baking mix and water until soft dough forms; beat vigorously 20 strokes. Gently smooth dough into ball on floured cloth-covered board. Knead 5 times. Roll dough into a rectangle 8 x 5-inches and cut crosswise into 4 equal parts. Place strips lengthwise on broccoli. Brush with butter and sprinkle with cheese. Bake at 350 degrees for about 25 minutes or until fish flakes easily when tested with a fork. Makes 3 or 4 servings.

#### Dill Sauce

2 tablespoons butter or margarine  
 2 tablespoons biscuit baking mix  
 3/4 teaspoon dried dill weed  
 1/4 teaspoon salt  
 1/8 teaspoon pepper  
 1 cup milk

Heat butter in a 1-quart saucepan over low heat until melted. Stir in baking mix, dill weed, salt and pepper. Cook over low heat, stirring constantly, until smooth and bubbly; remove from heat. Stir in milk. Heat to boiling, stirring constantly. Boil and stir 1 minute.

#### Leaf Lettuce With Mustard Dressing

While growing up in West Virginia, this salad was one of my favorites.

1 hard-cooked egg  
 2 tablespoons sugar  
 1 tablespoon prepared mustard  
 2 tablespoons cider vinegar  
 Fresh garden leaf lettuce

Peel egg and remove yolk. Mash yolk with sugar and then stir in mustard and vinegar. Cut egg white into small pieces and add to dressing. Re-

frigerate. Before serving, pour dressing over garden leaf lettuce. Serves 3 or 4. Note: This recipe can be doubled easily.

#### Deep-dish Blueberry Pie\*

1/4 cup all-purpose flour  
 1 cup granulated sugar  
 1/4 teaspoon ground nutmeg  
 5 cups blueberries, picked over  
 2 teaspoons finely grated lemon rind  
 2 tablespoons butter or margarine, cut into bits

Your favorite crust prepared for a deep-dish pie cover

Milk and sugar glaze (recipe below)

Blend together the flour, sugar and nutmeg in a large mixing bowl. Add the blueberries and lemon rind. Fold the berries through the sugar mixture. Pile into a deep 9-inch pie pan or any other deep-dish oven-proof cooking vessel (round or oval). Dot with butter. Cover the filling with the round of pie dough, seal and crimp the edges. For the glaze, brush the top of the pie with the cold milk and sprinkle with sugar. Cut several steam vents in the top crust with a sharp knife.

Bake in a preheated 425 degree oven for 20 minutes. Reduce the oven temperature to 350 degrees and continue baking for about 35 minutes longer or until the top crust is golden. Transfer to a cooling rack. Serve warm or at room temperature. Makes 6 to 8 servings.

#### Milk and Sugar Glaze

2 tablespoons cold milk  
 1 tablespoon granulated sugar

\* From *Country Pies* by Lisa Yockelson, Harper & Rowe, Publishers, Inc., 1988. □





by Col. William Antozzi, Boating Safety Officer

## Coming Home

When a boater goes offshore, he obviously doesn't plan to stay out there for an unrealistic, protracted period of time. However, sometimes unplanned things happen which make returning difficult. For that reason, it is always a good idea to leave a "float plan" with someone who really deeply cares about whether or not the boater comes back. The float plan should tell the color and description of the vessel, the registration or documentation number, and the name, age, address and telephone number of the boat operator and all passengers. It should also list survival equipment such as flares, signal mirror, smoke signals, flashlight, emergency position indicating radio beacon (EPIRB), and type of radio with its frequencies.

To make the float plan even more useful, trip expectations should be included. It should state the time and place of departure on the water, the intended destinations, the route to be followed, the planned time of return and return route, and who to call if the vessel has not returned when due. If the boat is trailered, the car and trailer license plate numbers and where parked should be included.

The U. S. Coast Guard Auxiliary doctrine states that with a float plan left behind, those who need help will be found more quickly, thus decreasing the danger of permanent injury. In addition, a quick rescue permits search and rescue facilities to go on to help others who were not as far-

sighted and well-prepared.

When a skipper heads out on big water such as the Chesapeake Bay or the Atlantic Ocean, he should keep a chart at the helm and plot his course from buoy to buoy or other easily recognizable objects. Keeping track of how an operator got his boat to any location by chart use and keeping track of time and speed is called



photo by Hawk Photo ©

"dead reckoning." This is a big plus for the operator because, in the event of fog or the onset of darkness, he can run his course in reverse and return to his departure point. Running a course in reverse entails the use of tide and current calculations in addition to known compass headings.

If an emergency arises and it is necessary to radio for help, it may be necessary to give the vessel's position. The skipper who has been keeping track of his chart position can be specific about his location. It is frustrating for the Coast Guard, marine police or other potential rescuers to receive a call for help and be told that the location of the distressed vessel is unknown.

One problem, which is a result of poor planning, is running out of fuel. Over half of the vessel's fuel supply should be saved for the return trip. A vessel operator never knows what difficulties may be encountered on the return trip. Currents may change, winds may unexpectedly shift to cause headwinds and the vessel may get off course and take a longer route than was expected. Another possibility is that a returning vessel may come across a distressed vessel needing a tow, which can cause greatly increased fuel use. Also, a skipper may use most of his fuel in one tank and then find that his second tank contains contaminated fuel. Many things can happen, but the wise vessel operator plans for most eventualities. No one can foresee everything but the practical skipper does his best so that he can return as planned.

In the event of unexpected storms, it may be necessary to go ashore somewhere short of destination. Advance plans should be made for such exigencies and possible temporary havens selected. Those plans should be included in the float plan. □





*Winter Comfort*  
by  
Bob Henley

## Winter Comfort

by Bob Henley

A limited edition of 950...

Available now from *Virginia Wildlife*.

**W**e are proud to offer wildlife artist Bob Henley's limited edition print of two red foxes in snow to our *Virginia Wildlife* subscribers. Bob Henley's breathtaking work has been featured in the February and July 91 issues of *Virginia Wildlife*, and for weeks after those magazines appeared, people called us inquiring about

Bob Henley prints for sale. We realized that our subscribers weren't content to have a Bob Henley work in their magazines, they wanted one for their walls! And, lo and behold! Bob has allowed us to make a special offer to our subscribers. First, you can have your very own 13"x19 1/2" *Winter Comfort* print for \$35 when you buy two one-year subscriptions

to *Virginia Wildlife*. That's a savings of \$10 off the regular price of *Winter Comfort*.

Of course, if you've already given everyone you know (including yourself) a subscription to *Virginia Wildlife*, you can still purchase *Winter Comfort* for \$45. Any way you look at it, we hope you're as happy as we

are about the opportunity to own a Bob Henley limited edition print for under \$50. Orders yours today!

Use the gray card in this magazine to order your prints and subscriptions, or send in your list of gift subscriptions and the number of prints ordered with your check made out to: *Treasurer of Virginia*, to: *Virginia Wildlife*, P.O. Box 11104, Richmond, VA 23230-1104.

# Freshwater Game Fish Poster

**T**he Virginia Department of Game and Inland Fisheries has produced a full-color 21" X 36" poster of 23 freshwater game fish in Virginia. This identification poster of fish includes largemouth bass, trout, crappie, catfish, perch and pickerel, and can be purchased by sending a check for \$8 to:

Fish Poster, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104. Please make check payable to: *Treasurer of Virginia*. ☐



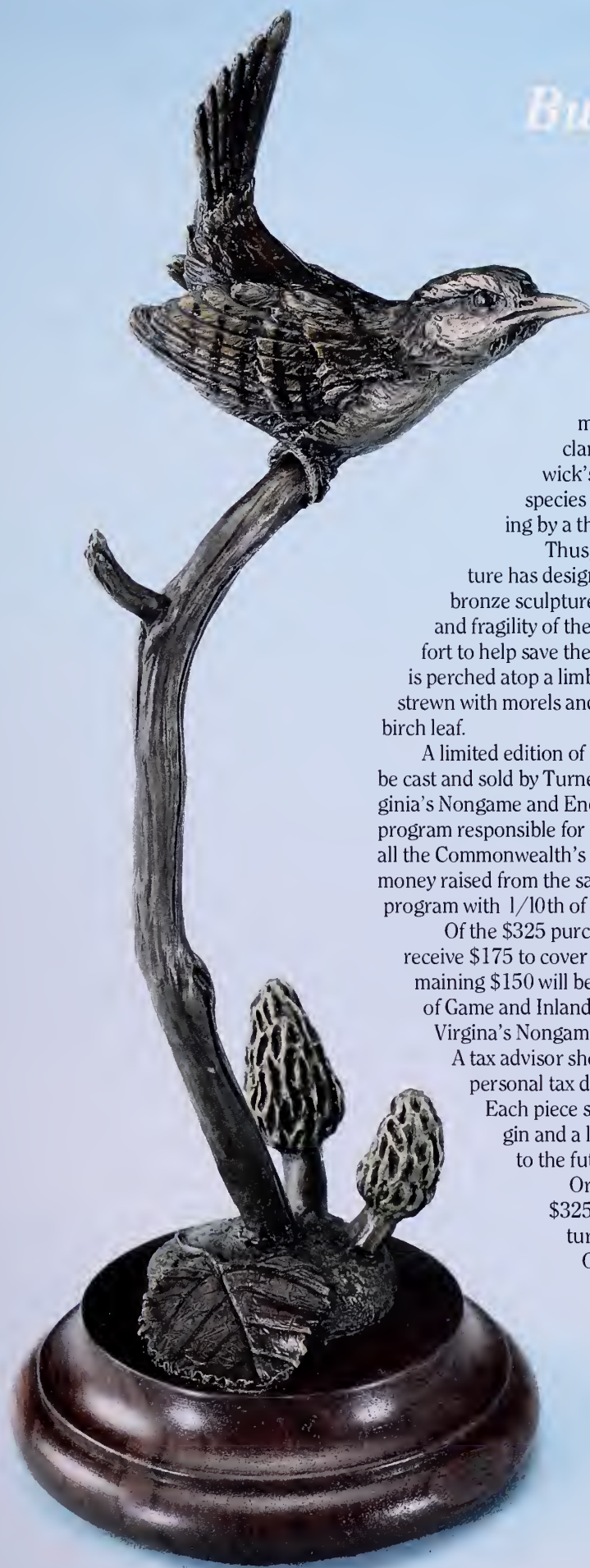
Common Fish  
of Virginia



- |                    |                          |
|--------------------|--------------------------|
| 1. Largemouth Bass | 16. Striped Bass         |
| 2. Spotted Bass    | 17. Rock Bass            |
| 3. Bluegill        | 18. White Crayfish       |
| 4. Pumpkinseed     | 19. Common Carp          |
| 5. Rock Bass       | 20. Common Golden Shiner |
| 6. Striped Bass    | 21. Common Golden Shiner |
| 7. Rock Bass       | 22. Common Golden Shiner |
| 8. Striped Bass    | 23. Common Golden Shiner |
| 9. Rock Bass       |                          |
| 10. Striped Bass   |                          |
| 11. Rock Bass      |                          |
| 12. Striped Bass   |                          |
| 13. Rock Bass      |                          |
| 14. Striped Bass   |                          |
| 15. Rock Bass      |                          |



## Buy one for a Song



**T**he cheerful *chip, chip, chip, de-da-a, te-dee* of the Be-

wick's wren is seldom heard in the mountains of Virginia anymore. Declared endangered in Virginia, the Bewick's wren represents just one of many species of wildlife whose survival is hanging by a thread in our state today.

Thus, David Turner of Turner Sculpture has designed this delicate 12-inch high bronze sculpture to draw attention to the beauty and fragility of the Commonwealth's wildlife in an effort to help save them. The enchanting Bewick's wren is perched atop a limb that pokes up from a forest floor strewn with morels and single rare Virginia round-leaf birch leaf.

A limited edition of 200 of these bronze sculptures will be cast and sold by Turner Sculpture solely to benefit Virginia's Nongame and Endangered Species Program, the program responsible for the management and protection of all the Commonwealth's rare and endangered wildlife. The money raised from the sale of this sculpture will provide the program with 1/10th of its present operating budget.

Of the \$325 purchase price, Turner Sculpture will receive \$175 to cover their production costs. The remaining \$150 will be sent to the Virginia Department of Game and Inland Fisheries as your contribution to Virginia's Nongame and Endangered Species Fund.

A tax advisor should be consulted regarding the personal tax deductibility of this contribution.

Each piece sold will include a certificate of origin and a letter confirming your contribution to the future of Virginia's wildlife.

Order your sculpture by sending a \$325 check made out to Turner Sculpture to: Turner Sculpture, Box 128, Onley, VA 23418. For credit card orders, call: (804) 787-2818.



TURNER  
SCULPTURE







**National Safe Boating Week**  
**June 7-13**